

BUTTERFLIES TAKEN AT LIGHT IN NORTH QUEENSLAND RAIN FORESTR.L. KITCHING¹ and R. HARMSSEN²*Department of Ecosystem Management, University of New England, Armidale, N.S.W., 2351***Abstract**

A number of butterflies were collected as part of a light sheet-survey of night-flying moths in the lowland rain forest of the Daintree region. *Badamia exclamationis*, *Cephrènes augiades*, *Hypolimnas alimena*, *Liphyra brassolis*, *Hypolycaena phorbas*, *Danis cyanea* and *Candalides absimilis* were all taken in this manner. Such records throw some doubt on the popular idea that butterfly activity is exclusively diurnal.

Introduction

Regular users of light traps know that butterflies, as well as moths, are often attracted to their lights. Although analyses of moth catches at lights are occasionally published, nocturnal records of butterflies are few, although some butterflies are known to be crepuscular fliers. Common and Waterhouse (1981) record such behaviour for *Chaetocneme beata* (Hewitson) and D'Abrera (1971) attributed such flight periodicity to all New Guinea amathusiines. The genera *Morphopsis* Oberthuer and *Morphotaenaris* Fruhstorfer are generally held to be largely crepuscular (D.P. Sands and T. Fenner, *pers. comm.*). Such records throw some doubt on the popular idea that butterfly activity is exclusively diurnal. We present additional records here.

Observations and discussion

During January and February 1992 we ran light traps within lowland, littoral rain forest at 'Pilgrim Sands' some 5 km N of Cape Tribulation, northern Queensland. A plant list for the area is provided by Jessop and Guymer (1985). Three light-sheets were used, one located on a platform about 5 m from the ground within the lower forest canopy and two at ground level. The light trap was screened with black plastic from below and the lower traps in a similar fashion, from above. Over 1000 moths were collected during ten nights over an 18 day period; these results will be published later. Eight butterflies of seven species were also recorded.

HESPERIIDAE

Badamia exclamationis (Fabricius). One female taken at upper light.

Cephrènes augiades sperthias (Felder). One female, upper light.

NYMPHALIDAE

Hypolimnas alimena lamina Fruhstorfer. Two females on separate nights, one at the upper light one at a lower light.

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LYCAENIDAE

Liphyra brassolis major Rothschild. One worn male taken at 0300 h at a lower light.

Hypolycaena phorbas phorbas (Fabricius). A single female taken at the upper light.

Danis cyanea arinia (Oberthür). One female, upper light.

Candalides absimilis (Felder). One female, upper light.

Of particular interest is the record of the myrmecophagous *Liphyra brassolis*. This enigmatic species was supposed to be crepuscular (Dodd 1902). Dodd, however, records watching adults ovipositing during the day. Our record, of an adult active at 0300 h suggests the species may not be exclusively diurnal. Such evidence as there is suggests it may be active at any time of the day or night.

For the species recorded at night it is difficult to know whether the records represent actual nocturnal activity or an artificial response to a light, and human activity, adjacent to locations where the butterflies may be resting. The persistence of high temperatures and humidities throughout the night in these lowland forests does not preclude nocturnal activity. *C. augiades* and *D. cyanea* were commonly observed during the day within the forest canopy. *H. phorbas* occurs abundantly on the seaward edge of the forest adjacent to our light traps. The other species recorded were not observed other than at light traps.

It is of some interest that all the individuals caught other than the *Liphyra*, were female. It is possible that oviposition-related activity, dependent on chemical identification of the appropriate food plants, is entirely feasible at night whereas nectar foraging, more dependent on visual cues, is not. Once active such individuals may well be attracted to a light source. Adult *L. brassolis* have reduced mouthparts and probably feed little, if at all. Of course if this is the case then the question arises why only a few species of the many that occur in the area actually are taken at light. Further observations are needed to resolve these questions.

Hill and his co-workers (1992) recently reported that sightings of 67 species of day-flying butterflies are relatively rare within the northern Queensland lowland rain forest as compared with forest edges and clearings, and especially so within the canopy. In contrast to this result we collected six of our eight specimens in the low to mid-canopy. This may indicate a little understood component of butterfly behaviour related to nocturnal activity and/or dispersion.

We suggest other light-trappers should publish their observations on butterflies, rather than treating such captures as anomalies.

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